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# THE VETERINARY JOURNAL

## A MONTHLY REVIEW OF VETERINARY SCIENCE

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# The Veterinary Journal.

APRIL, 1937.

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Mr. William Brown, M.R.C.V.S.

*Editorial Representative of the National Veterinary Medical Association*

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APRIL, 1937

## Editorial

## THE NEW QUARTERS OF THE NATIONAL VETERINARY MEDICAL ASSOCIATION.

THE National Veterinary Medical Association has at last come into it own, and the officials who were present at the reception on Tuesday, April 6th, at 36, Gordon Square, W.C.1, when the President was "at home," must have felt proud that at last their efforts to give the N.V.M.A. an abode worthy of such an important body was at last *un fait accompli*. Captain Simpson was well supported, and the gathering, which included many prominent men of the profession, was most enthusiastic.

The site has been well chosen, as 36, Gordon Square is within a few minutes of King's Cross, St. Pancras, Euston, and indeed of each of the big London termini. In fact a more central spot could not have been selected. The building is not only sufficiently roomy for the present activities of the Association, but affords sufficient extra accommodation to enable the careful Treasurer to put into his coffers quite a substantial annual rental for the surplus rooms. There is no question but that the fact that this can be made a central meeting-place for members of the profession both in London and the country will induce a much enlarged membership; for there is still a good leeway in this respect to be made up when one considers that out of a profession numbering 3,500 members only some 1,800 are patriotic enough to support what has now become their parent body and the organisation to which they look for redress of their grievances; to say nothing of the way (the only way) by which, through the weekly paper (the well-managed *Veterinary Record*), they are able to keep in touch with matters concerning that portion of life which is so important to their vitality—and indeed their actual existence—the professional side.



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There are some who still remember the time when no such thing existed as a paper which brought to our breakfast table (before the information was far too old to be commented upon) the news of what was *au courant* of the association of our profession with that of others in the scientific, medical, agricultural and other worlds. The superhuman effort which our much revered colleague, the late William Hunting, put into the foundation of the *Veterinary Record* can never be too highly spoken of, and must never be forgotten. It is true that we had two well-known monthly periodicals—*The Veterinarian* and *The Veterinary Journal*; but the Editors of each of these knew well, perforce, that the mere fact of their being produced monthly prevented the close contact with their readers which is necessary for interest to be taken in current and urgent topics; and on this account they were compelled to confine their efforts largely to the publication of clinical material which would interest and be of value to the practitioner. This they did well, but the practitioner who wished to keep up to date desired to be more in contact with his professional brethren, and to do this it was particularly essential that he should not only be placed in touch with the work of the various Veterinary Societies, but also that he should know what was being done in Parliament, in the Agricultural world, in the world of Medicine, and the world of Science generally.

It was with the endeavour to supply this want that William Hunting, single-handed in so far as the Editorship was concerned, but supported by a few personal friends, started *The Veterinary Record* in 1888 as a weekly periodical. How he worked and at the same time carried on a busy London and consulting practice is best expressed by a sentence which was told to the Editor of this Journal when asked at what time it was best to catch this gentleman at home, and the reply given was that if one went to his residence at three minutes to twelve midnight, one would meet him on his door-step with a bundle of letters in his hand on his way to the local pillar-box. Another little tale is not inapt at this juncture. William Hunting on one occasion had been to East Rudham, in Norfolk, to spend a few hours with his old friend William Bower, and on the return journey his companion in the train, in the course of conversation, not knowing to whom he was talking, introduced the subject of professional journalism, mentioning *The Lancet*, the *British Medical Journal*, and particularly alluding to the *Chemist and Druggist*. He then quite naïvely and unwittingly said how astonished he was that the veterinary profession showed up so badly in this respect, decrying in no uncertain terms what he described as "that weekly rag, the *Veterinary Record*." Mr. Hunting took it all in good part, but stated that he happened to know from first-hand information that the paper was "run" by an amateur journalist in the spare hours of a busy practice. Little more was said on this subject at the moment beyond a further somewhat deprecatory remark by Mr. Hunting's companion, who, as they were parting, handed over his card. William Hunting, reciprocating, laughingly said: "and you will see by this that your companion this evening has been the Editor of that terrible rag the *Veterinary Record*." The apology which followed can better be imagined than described!

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There was one man who was standing quietly in the background of the gathering at Gordon Square to whom this ceremony must have meant more than to any other present—one who can deservedly be said to have been one of the most loyal pioneers of all—Mr. William Brown, M.R.C.V.S., whose title of "The Editorial Representative" stands in the same position to the veterinary profession as do the permanent officials at Downing Street or Whitehall, to whom the country looks to keep the figure-head within the driving reins—so that he does not assume the Dictator attitude and do foolish things. He is the one "permanent official" to whom the veterinary profession owes more than to any other in regard to the *Veterinary Record*. Of Quaker family, the son of a model father, his upbringing was strict and his character has had ingrained in it almost too much strict morality and quiet modesty for any other Editorial post than that of a professional periodical; and to do the spade work such as had been necessitated by the conditions under which the *Veterinary Record* was carried on for many years could only have been accomplished by a man whose character breathed out determination, tolerance and self-effacement. At the time when he first became associated with the *Record* he was a student in the London College, working for his professional examinations and utilising his knowledge of reporting and newspaper sub-editing to help our weekly paper. It was unique to find a man cognisant with veterinary technicalities who could also use his expert double knowledge. This remark will be readily appreciated by all editors who have attempted to utilise the services of lay reporters for technical speeches on professional subjects. How he carried on in those dreary cramped quarters in Buckingham Palace Road—and indeed the same measure of praise must be given to the whole Editorial Committee and Staff of those crucial days—was hard to understand. Their pioneer dogged perseverance was a source of great encouragement to those who were compelled to put up with similar inconveniences during the time the Royal Veterinary College was being raised, Phœnix-like, from the ashes of the neglected and derelict hovels which a widely circulated newspaper press (and also a Government Committee) truly and appropriately named "a National Disgrace."

The value of the varied work of his experienced pen can scarcely be overestimated, and, although a Quaker, Mr. Brown can be absolved from the accusation of conceit if for once his head swelled with pride when he saw that the sun had at last risen above the horizon, and that his dream of seeing an editorial office worthy of the paper for which he had worked so well had now come true; and that it was at last housed in quarters of which no one need be ashamed.

That the N.V.M.A. has entered upon a new and prosperous phase of its existence is certain, and it now only needs that the recalcitrant members of the profession mend their ways and join the Association, which is as ready and willing to help them in the future as it has done in the past. We can assure them that they will not only not lose, but that they will gain a hundredfold, socially as well as professionally, and that they will wonder why they have never long ago taken hold of the advantages to which their two guinea subscription entitles them.

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# General Articles

## COUNTY VETERINARY SERVICE AS A CAREER.

By L. JORDAN, Ph.D., M.R.C.V.S.

*Chief Veterinary Officer, West Sussex County Council.*

### Inducements.

THERE is no doubt that a large number of students to-day have already decided that when they ultimately qualify as members of the Royal College of Veterinary Surgeons they will sooner or later try to enter some branch of the Local Government Service. This ambition is probably fostered largely by the idea that such service has at least one big recommendation—it is safe! Should they be asked whether it was a pleasant, interesting or otherwise desirable branch of the profession, they would probably reply that they considered it less enjoyable in many ways than general practice, but that the feeling of security generally associated with such appointments was the greater consideration. The scale of remuneration at present offered to county veterinary officers is a very favourable one when compared with that offered to young men starting a career in other professions. There is probably no branch of our own profession which offers a financially higher inducement to the young graduate. The fact that the whole-time veterinary officer expects his hours of duty to be both fairly regular and certainly fewer in number than those of his colleagues engaged in general practice undoubtedly weighs in favour of this service. It is true that he will not enjoy the frequent changes of scenery at public expense as will, for instance, his brother in the Ministry of Agriculture. Probably, however, he will choose to pay for such excursions himself during his undoubtedly reasonable holidays, rather than be forced to make the acquaintance of, say, the Peak district, the Welsh Hills or the outer Hebrides on the eve of his cancelled Christmas holidays or honeymoon. The millstone of most veterinary practitioners, *viz.*, bad debts, does not form part of his anxieties. County Councils do not pay their officials more often than they are obliged. They have, however, a desirable reputation of being most reliable and regular in respect of such payments. A further and quite important inducement is the fact that whilst a considerable amount of work must be got through, it can be arranged largely to suit oneself rather than at the dictation of a variety of people or other causes. Finally, relatively few people can hope to enjoy perfect and constant good health. In local government service it is possible to be happily confined to bed without the knowledge and fear that your practice and livelihood is suffering through your enforced absence.

### Qualifications.

It is an excusable but nevertheless general illusion of young graduates, having completed the five-year course in veterinary science and possibly a further course

to qualify for the D.V.S.M., that they are now quite fit to take full responsibility in all branches of veterinary practice. Surely they may be forgiven for thinking that anyone having such qualifications and an average amount of common sense is capable of undertaking such a simple task as that of a county veterinary officer. Unfortunately, the duties involved in this service are not so light and simple as they might appear. One is constantly brought up against difficulties which somehow do not seem to have been included in the college curriculum, comprehensive though this undoubtedly now is. The county veterinary officer is commonly stationed on his own and must take the full responsibility of his actions, and woe betide him if he makes a "bloomer." County councils are generous and fair-minded bodies of individuals, but they are not noted for their sympathy towards mistakes made by their officers. Undoubtedly the very best qualifications with which a man can be armed before entering county veterinary administration starts with a sound general agricultural knowledge which should be acquired by direct contact with farm work during his youth. This is, of course, true of any veterinary surgeon who expects to devote his time to any branch of agricultural or equine practice. Following graduation, a spell in a really busy country practice is essential, and the bigger and more varied the practice, the more particular the principal and the harder one has to work, the better. A period as an inspector of the Ministry of Agriculture and Fisheries is invaluable if it can be arranged, as there one is brought into contact with the administration of those Acts and Orders governing certain notifiable diseases, such as sheep scab, swine fever and especially foot-and-mouth disease. Not everyone is fortunate enough to be able to take a spell in research work, and yet there is no better qualification, and it is one which will stand in good stead during the remainder of one's career.

It will possibly be thought that a lot of time has been wasted going through all these suggested stages in order to qualify for what appears such a straightforward job. This depends entirely upon the success one hopes or expects to make of one's ultimate position. Anyone fortunate enough to have sampled these post-graduate experiences will be only too ready to endorse the statement that each in turn plays a most important part in our training, and the experiences gained in each are invaluable. The most valuable experience of all is an assistantship in a sound country practice, without which no one should contemplate county veterinary service, no matter how brilliant has been his scholastic career or how many post-graduate qualifications he might fortunately possess.

**Service.**

Most jobs are what you make them. This is especially true of whole-time county service. All branches of our profession entail a number of unpleasant or monotonous, but none the less necessary, jobs. Not even the greatest enthusiast can be expected to find any stimulating interest accompanying the removal of bovine fœtal membranes, or the evacuation of canine anal glands. Similarly, the removal and examination of pigs' intestines for evidence of swine fever day after day is anything but pleasant, especially when the subject of the post-mortem

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has been dead for a week in the height of the summer and buried in the manure heap. In the same way, the examination of hundreds of cows' udders is an overrated pastime. A whole-time job is confined to somewhat limited channels, and it would be very easy to acquire the habit of "go-day, come-day, God send Sunday, and especially pay-day." On the other hand, if the job is tackled with the intention of making it interesting and furthering one's knowledge of veterinary science, there need be no lack of material or opportunity. Fortunate indeed are those officers who have access to a well-equipped laboratory. Such a privilege not only enables one to carry out routine duties with dispatch and efficiency, but furnishes unlimited opportunities of introducing interesting and useful sidelines. We are particularly fortunate in West Sussex in having such a laboratory, fully equipped and entirely under our own control, and this is greatly appreciated. It will be found that friendly co-operation with the practitioners in the district not only makes life more worth while, but will be found to be to the mutual benefit of both parties. Practitioners encounter many conditions which they are often only too pleased to discuss with you, and not infrequently they will welcome help or advice in dealing with unusual cases. It is in such instances that a local laboratory and some knowledge of research work is particularly helpful. The problem of the eradication of bovine tuberculosis is a campaign in which the whole-time service must play a big part. The supervision and encouragement of such a programme is greatly interesting and stimulating both from the successes and also through the disappointments which are encountered. A county job could become almost unequalled in dullness and monotony if one's mentality was such as to allow things to slide. If, however, a genuine attempt is made to avoid this, the endeavour will meet with certain success.

**Expectations.**

These are much the same as in any whole-time appointment in our profession. No one can hope to make more than a bare living. An assistant county veterinary officer commencing at a salary of, say, £450 per annum compares favourably with similar appointments in other professions. The maximum salary of a chief veterinary officer of, say, £900 per annum does not, however, compare so favourably. At the same time, it is not a figure which can be "sneezed at." One advantage of the county service is that one's endeavours and ability may receive more appreciation than in certain other whole-time appointments. It is not always the case of waiting for dead men's shoes before hoping for recognition, especially of a financial nature. There is lacking that satisfactory feeling of achievement which must be felt in general practice when things are going well and a good year has ended. This is, however, largely compensated by the fact that the converse picture of bad debts, ill-health, accidents and other similar disasters is not always lurking at the back of one's mind.

County veterinary service is lacking in violent excitement, competitive stimulation, high remuneration or social honours. On the other hand, taking everything into consideration, it is one which can be wholly recommended as an interesting, reasonably lucrative and comparatively safe career.

# COUNTRY PRACTICE.

By RICHARD HUDSON, F.R.C.V.S.

*Retford.*

WHAT are the prospects for a young member of the profession entering country practice with regard to cattle practice? Who can tell? There is a likelihood of improved conditions in the milk-producing branch, but beef production and cattle rearing are a poor game. The dairy cow is the only class which finds sufficient work for the veterinary surgeon to be of interest.

For a long time milk production has been in excess of requirements, and some of the surplus has been passed on for cheese production, but with the market glutted with foreign cheese there is not much prospect of the milk-producing industry enlarging very rapidly, and so needing more veterinary surgeons than there are at present.

The improvement in sanitation and the inspections under the Accredited Herd Scheme will again tend to reduce the amount of work. Cows should be healthier under better conditions, and the fact that an inspector finds an ailing cow does not imply that the owner's veterinary surgeon will be called in to treat it. The owner, having found out what is the matter, goes to his chemist for something to treat it with, and so the veterinary surgeon loses another case. Quite a lot of cases are lost to us in this way Similarly the Tuberculosis Order is made use of. Cows are reported with a view to the owner finding out what is the matter. They have not the slightest bearing on the classes of the Tuberculosis Order. I, as a deputy inspector, have gone to reported cases, and, having examined them, asked why they were reported, and the replies have been, because they did not know what was the matter with them.

Many veterinary surgeons have complained to me of the falling off in their professional work since the accredited scheme inspections were introduced. Motor buses, cars, and telephones enable a man single handed to do far more than formerly. He can cover the range of two or three old practices, pack his medicines off by the omnibus parcel service, and advise in the intervals by the telephone. By these means much assistance, previously necessary, is cut out.

On the other hand, there is a tremendous lot of work to be done. Work in the prevention of disease and the treatment of neglected cases. The cattle losses in my district are appalling. Hundreds of yearlings died or went derelict from hoose last summer, but only a few were ever treated. Farmers have been very hard up, and they may prefer to let their animals die rather than pay an account for their treatment even if it may be reasonable in amount.

It is a queer mentality, but it is there, and it is increasing; therefore there is not much chance of the work increasing. The farmer to-day is being spoilt by subsidies, and he is now waiting for veterinary subsidies. He is losing all sense

of economic waste both in land and stock, and for these reasons I do not see much prospect for the future young veterinary surgeon among cattle.

The carrying on of an old or established practice may be satisfactory enough, but to put his plate up, hoping that the increase of dairying would create room, I am afraid would lead to disappointment.

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## CENTRALISED SLAUGHTERING.

By Lt.-Col. DUNLOP YOUNG, O.B.E., M.R.C.V.S., D.V.S.M.

*Charterhouse Square, London, E.C.1.*

THE Live Stock Industry Bill contains, amongst many things, a proposal to initiate centralised slaughtering of our food animals by establishing, it is stated as a beginning, three public abattoirs. The sites have not as yet been definitely fixed. Leicester has been suggested as one ; Aberdeen as another ; while various places have been mentioned for the third.

There seems to be great difficulty in interpreting the intentions of the Government, because it is at present understood the abattoirs will not be built or supported by the Government. Their institution will be left to voluntary bodies ; no butcher will be compelled to use them, and private slaughterhouses will not be taken from their owners, but we suspect there are unstated intentions pigeonholed somewhere.

The objects of these abattoirs are, it is stated, to deal more economically with our fattened farm stocks, especially by treating all by-products according to the latest and most profitable methods, stimulated no doubt by the statement so often made that in the huge meat works overseas profits are made from the scientific treatment of the by-products rather than from the carcases of cattle, sheep and pigs.

To those who have visited these modern establishments and observed the methods of treating by-products, such statements can be more readily realised than by those who have not had such an opportunity ; but it may be pointed out that it is much easier to initiate such methodical treatments by one self-contained unit where *all the animals* belong to the same owner than in an abattoir where there may be many owners of animals, some of whom may kill less than ten cattle, fifty sheep and ten pigs weekly, unless some co-operative principle be adopted in dealing with the whole of the by-products. Such a method already exists in some abattoirs, a good example being in operation in Adelaide, Australia, where the owner of animals has, if he desires them, to actually buy the organs derived from his cattle, sheep and pigs.

Doubtless some efficient workable arrangement can be evolved by co-operation amongst those willing to assist in making what many people in this country call revolutionary ideas a success. Difficulties are said to be made to be overcome, and

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it is surprising what can be done if the matters are placed in willing hands guided by experienced, progressive officers; but a warning should be made that such work is not for tyros, otherwise a failure is almost sure to result.

The proposition to establish these abattoirs is giving farmers, dealers, and especially retail butchers who buy their animals on farms or in markets and have them killed and dressed in their own slaughterhouses by their own employees under their supervision, much concern. Their establishment must mean, if they are to be a success, the closing of all the private slaughterhouses within a certain radius. To do this it would be necessary to have an Act passed by Parliament, and proprietors would naturally ask for compensation; this has already been done by some local authorities, but at great cost. The greatest difficulty would be with registered slaughterhouses. It would be more easy to effect in dealing with licensed slaughterhouses where the local authorities can refuse to grant further licenses; even in such cases it would be unjust to take from a tradesman his workshop without giving him full compensation, for it would evidently be more costly for a butcher to have his animals stalled, fed and prepared as beef, mutton or pork in a public abattoir than in his own slaughterhouse. It has been stated that the greater profit he would obtain from the scientific treatment of his by-products would compensate him for the heavy charges on the public abattoir method of handling. This remains to be proved; some of our present abattoir charges being very heavy.

Doubtless the first consideration of the proposers of the scheme is to obtain for farmers a higher price for their animals from the butchers, who must necessarily be expected to get more profit from their labours, otherwise they cannot pay higher prices for the animals, and if home-bred meat is too dear the public will not buy it. It is, therefore, at present problematical as to farmers obtaining the expected increase in prices. It may be urged by the proposers that farmers will try the method of having their animals slaughtered in the abattoir and the carcases sent to the dead-meat markets. This is a greater gamble than anyone knows, except those who have tried it, for farmers would have to employ agents to deal with carcases and by-products from the time the animals left the farms until the final disposal of them to the retail butchers.

A few weeks' trial might, depending on prices, be so successful that the farmers would think at last we have found a solution to our losses; but, on the contrary, they might strike a bad patch in the meat trade and obtain less than they had been obtaining, plus all the worry associated with the work involved and neglect of farm work, if personal attention is to be given to the disposal of the animals; they would also not get a cheque in their hands without any trouble, but have to wait until the disposal of the meat and by-products. It will, therefore, be seen that it is not all plain sailing for those trying to cut out the middleman, and so many farmers will still sell to dealers.

The success of the abattoirs will depend entirely on the support given to

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them by the butchers, and they should be consulted, through their Federation, at every step taken.

There is at present amongst butchers a very general feeling against the Bill. The views of the butchers against the abattoir scheme may be stated; they include: the handing over of their purchased animals to have them put into lairages amongst other animals, where they may be gored and not get the quiet rest so necessary to produce well-bled carcases; the extra expenses of engaging men to feed and kill the animals, and to dress the carcases, instead of the work being done by their own men on their own premises under their personal supervision; the risk of substitution of diseased organs for sound ones; stealing of fats; loss of bloom on carcases by transportation from abattoir to the retail shops, for carcases dressed in a private slaughterhouse and carried into a shop always look much better than transported carcases; the advertisement of showing their clients the fine types of animals they purchase; and the heavy dues connected with abattoir methods compared with private slaughterhouses. Some butchers go the length of stating emphatically they would prefer to buy the best imported meats rather than have all the trouble and worry of centralised slaughtering, and there would be no risk of loss in buying home-fed animals which might be diseased.

The only argument in favour of centralised slaughtering is that by efficient method of handling by-products money would be saved. Unbiased consideration of the arguments appear to favour the butchers' side of the picture, for the value of the carcases would not be increased, and no more money could be obtained for hides and offals. There could then only be, perhaps, a better utilisation of blood, hoofs, slips, rough fats and endocrine glands to place against the expensive public abattoir methods.

It would be well if a committee were set up to go into all these details after one abattoir has been built, and remedy defects before any others were established, because unsatisfaction by the butchers would mean less demand for home-fed animals and more for imported meats.

### Veterinary Ante-mortem and Post-mortem Inspection.

This is a feature of centralised slaughtering about which there can be little, if any, difference of opinion; for by co-operation between the officers of the public abattoirs and county inspectors much could be done to control and eradicate diseases amongst farm stock by tracing back to the farms diseased animals and action taken there with effective measures, such as detection of contagious diseases—anthrax, foot-and-mouth disease, sheep scab, etc., also parasitic infections, *e.g.*, warbles, flukes, stomach and intestinal worms.

All carcases should, after inspection, be stamped as suitable for human food, and so free butchers from any fear of prosecution for having in their possession diseased meat, subject to reporting any lesions discovered on cutting up carcases.

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# SUBCUTANEOUS AND CUTANEOUS LESIONS IN CATTLE WHICH SOMETIMES CAUSE HYPER-SENSITIVENESS TO TUBERCULIN (SO-CALLED " SKIN TUBERCULOSIS ").

By GEOFFREY B. BROOK, D.Sc., F.R.C.V.S.

## Introduction.

THROUGHOUT the United States and Canada some cattle are affected with a condition which has received the name of " skin tuberculosis," so-called because a proportion of these cattle will react to the several tuberculin tests, although on post-mortem examination the animals are usually found to be free from macroscopic signs of orthodox tuberculosis. According to Hagan (1930), Perard and Ramon (1913) were the first to describe the disease. Wight (1930), speaking in New York State, declared " this problem (the skin lesion) is a real problem not only in this State, but every State." Hagan (1930) remarked that many herds in the U.S.A. failed to become accredited* or lost their status because of " skin lesion " reactors ; in Canada recently the effect of the disease on tuberculin reactions in cattle on Prince Edward Island (*see* map) has necessitated a special survey of the problem.

*Clinical Picture.*—The lesions take the form of hard painless nodules varying in size up to that of a hen's egg (*see* Figs. 1, 2 and 3). They may be single or multiple ; in the latter case they generally occur in chain formation, supposedly following the lymphatic vessels, and are united by tissue thickenings with the largest and presumably the oldest nodules distally (Hagan, 1930). They are usually found on the limbs (fetlock, hock, forearm), less frequently on the trunk (chest wall, shoulder) and occasionally on the eyelid (Mitchell—private communication†). Each nodule is subcutaneous in position, but closely related to the skin ; some (Hagan, 1930, p. 107) are atttached to the deep layers of the skin. The hair overlying the lesions is not lost unless a sinus develops to the outside, and, discharging, causes excoriation and blemish. Many lesions can be detected only by palpation, the overlying hair masking their presence. The rate of development varies, but is probably not more than a few months (Hagan, 1930, p. 122). Some farmers affirm that lesions develop at the site of or near wounds, such as are caused on the fetlocks when rough frozen ground is traversed. The regional lymph gland is only rarely involved in naturally-occurring cases. Pendergast (1936), for instance, observes that " out of several hundred cases of skin lesions, I have observed probably less than five cases that showed tuberculous lesions of the

* Accredited herds in the U.S.A. and Canada correspond closely to attested herds in Great Britain.

† Reference is made here and elsewhere to a private communication by Dr. Charles A. Mitchell, of the Animal Diseases Research Laboratories, Hull, Quebec Province, who is engaged on an investigation into the " skin-lesion " problem, and kindly furnished me with his unpublished observations for incorporation in my report.—G.B.B.

prescapular lymph gland, associated with skin lesions in the region of the shoulder." A lesion may persist unaltered for years or undergo atrophy; in other cases the nodule breaks down, discharges to the outside and may finally heal (Hagan, 1930, and personal communications from many field workers in North America).

*Macroscopic Appearance.*—On section a nodule is seen to consist of a fibrous wall enclosing a centre or centres consisting of: (*a*) caseo-calcareous material, this is the commonest type; or (*b*) glutinous pus; or (*c*) dry material resembling powdered maize; or (*d*) dry flake-like pellicles.

Prince Edward Island (marked with arrow 'A') and the Eastern part of Canada.

*Microscopic Appearance.*—Hagan and other investigators state that the microscopical structure of the lesion is indistinguishable from that of a tuberculous nodule.

**Incidence and Distribution.**

In most parts of the U.S.A. and Canada the traffic in dairy cattle is not so great as in Britain. Accordingly North America is a more fruitful hunting ground for the disease statistician than Great Britain; statistics can be obtained in the self-supporting areas which could not be compiled in England. Hagan has written: "There does not seem to be any relationship between the distribution of tuberculosis of cattle and of the skin lesion, unless it is an inverse ratio." In some areas in the U.S.A. where orthodox tuberculosis has always been low, or in counties which have been free from tuberculosis for a long time, great numbers of skin lesions occur. This is also true of Canada (Prince Edward Island). A few cattle only are affected in a given herd at one time. Mitchell (private communication) found that on Prince Edward Island nearly all cases occurred on farms where orthodox bovine tuberculosis had never previously been recognised or detected by tests. Hagan (1930) refers to farms which had been apparently free from tuberculosis for ten years, and in one case twenty years, before the appearance of skin lesions. The incidence on Prince Edward Island has been ascertained by Mitchell (private communication). In the third area test* of the Island in 1935, 94,194 cattle were included. Of these, 195 (0.21 per

* In Canada under one tuberculosis eradication scheme certain areas are quarantined, the cattle tested by the caudal fold (intradermal) method and reactors slaughtered. Re-tests are made at specified intervals. Prince Edward Island is one such area.

cent.) reacted, of which 23 were found on post-mortem examination* to be affected with orthodox tuberculosis, whilst almost all the remainder showed no macroscopic changes except skin lesions. A clinical examination was made of the cattle on the island, and it was found that there were as many " skin " cases remaining as had been removed as reactors. Thus there were probably about 344 or 0.36 per cent. of all cattle affected with the nodules at the time of the test.

During the second investigation the other stock—horses, swine, goats, dogs, poultry, etc.—on many farms on the island were tested with tuberculin, but the number and distribution of the reactors bore no relation to the incidence of skin lesion cases.

A second estimate of interest is submitted by Hagan (1931), who says that of 27,000 reacting cattle from New York State slaughtered in one centre in 1926–27, " nearly 900 showed lesions in the skin," and that because many smaller skin lesions must be missed " we may conclude that the affection is several times as prevalent as the inspection statistics suggest." Hagan does not tell us the total number of cattle in the herds from which these reactors were drawn.

*Co-existent Orthodox Tuberculosis.*—In recent years in North America the majority of cattle affected with skin tuberculosis which have reacted to tuberculin and been slaughtered have shown no macroscopic signs of orthodox tuberculosis. Thus in Prince Edward Island, in 1935, 195 reactors were slaughtered, and of the 172 having no visible lesions, all showed skin lesions. Hagan (1930) examined 189 skin lesions, of which 125 were obtained from carcases of reacting cows which showed no visible changes on post-mortem examination. Before bovine tuberculosis was controlled,† coincident infection was doubtless much more common and probably many of the subcutaneous nodules passed unnoticed, attention being focussed on the typical tuberculous lesions usually present.

*Micro-organisms in Skin Lesions*—All investigators have demonstrated acid-fast bacilli in a considerable proportion of their cases. The organisms are indistinguishable microscopically from the tubercle bacillus.

*Results of Cultural and Biological Examinations.*—In the great majority of instances these examinations have been entirely negative. From time to time successes have been reported, but the organisms were always atypical in character. The same negative, or at the best atypical, results have followed attempts to transplant or artificially reproduce the disease in cattle ; the latter did, however, become sensitised to various tuberculins.

* All reactors must be slaughtered for post-mortem examination in packing stations, where a compulsory independent meat inspection system by Federal veterinary officers is in force. The inspection procedure is quite similar to that laid down in the Scottish Meat Inspection Regulations. We saw the inspection in operation at certain packing centres ; from the expertness with which the examinations were carried out by the separate veterinarians who examined different parts of each carcase, we gained the impression that only exceedingly small macroscopic lesions could escape detection unless the disease changes were located in and confined to unusual and inaccessible sites such as the long bones or brain.

† In Canada about one-third of all cattle are now linked to the eradication schemes ; the total cattle population is about 8½ millions. In the U.S.A., according to the monthly report for June, 1936, 59,907,935 cattle were under supervision. The total cattle population is about 65,000,000.

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Traum (quoted Hagan, 1930, p. 108), and Hagan (1930, p. 109) each isolated on one occasion organisms with atypical cultural characters. Mitchell (1932, p. 48) isolated a strain pathogenic for laboratory animals and which set up a lesion in a calf which later reacted strongly to tuberculin. Daines and Austin (1932) isolated a strain, from old cultures of which they were occasionally able to recover organisms of an acid-fast type. Bruner (1934) mentions experiments with a strain isolated direct from a skin lesion by Harriet Thompson in 1928. Mitchell, McKintosh and Duthie obtained two strains by animal inoculation. The first (strain 144) was of equal pathogenicity for rabbits and guinea-pigs, and of three chickens into which it was injected, two reacted after a long interval to bovine and avian tuberculins, especially the latter. The second strain came from a four-year-old cow reacting to bovine tuberculin (intradermal). She was reared by a man suffering from advanced pulmonary tuberculosis. The strain was pathogenic for a chicken which reacted to avian and bovine tuberculins. Crawford (1936) isolated two apparently identical strains of chromogenic organisms capable of causing in cattle subcutaneous swellings " somewhat similar to skin lesions." The organisms were able to sensitise guinea-pigs, some chickens and cattle to various tuberculins, especially avian. Reactions to mammalian tuberculin were not always obtained in the cattle. Crawford was not able to claim that his organisms were the cause of the natural disease. He suggests from his own observations and those of Frey (1931) that the cause may be one of the many strains of acid-fast organisms found in the soil. One such strain isolated by Crawford from the soil of a farm, amongst the cattle on which naturally-occurring skin cases appeared, proved non-pathogenic for cattle and laboratory animals.

*Reaction of Affected Cattle to Tuberculin Tests.*—Traum says that at a given time about half the affected cattle react to tuberculin. Mitchell found this to hold true for cattle on Prince Edward Island. There is little information about the length of time for which a reactor remains a reactor, nor do we know at what stage in the disease cattle develop allergy. American field workers meet the reactors only once, when they are branded for slaughter. Hagan (1930, p. 112) subjected a few cattle to a series of tests and concluded that " some animals at least lose their tuberculin hypersensitiveness and become non-reactors, although the lesion did not retrogress." He believes this may explain why only a proportion of field cases react. Several field workers have told us that if the swellings were removed surgically the patient lost its sensitiveness to tuberculin.

Hagan (1930, p.111) states that the best reactions are obtained with the intradermal (caudal fold ?) method. One field worker told us he had seen reactions using the double intradermal (Buxton) tuberculin test ; the ophthalmic test is less reliable, whilst the subcutaneous method is the least sensitive. One veterinarian (Dr. Bright, Brockville, Canada) said that he had never obtained reactions with the subcutaneous test. Whitemore (quoted Hagan, 1930) believes, in common with many we met in the States, that animals affected with skin lesions only, give an atypical intradermal reaction, which is " soft and doughy rather than

firm." The Canadians (Mitchell, etc.) claim that the reactio ns are well marked and typical. It must be remembered that in the U.S.A. the tuberculin is derived from a human, and in Canada from a bovine strain.* This may determine the difference in the reactions. Animal experiments by Mitchell and Hagan (1930) and Crawford (1936) with bacilli recovered from skin lesions, and by Hagan (1931) with non-pathogenic acid-fast germs, have shown that reactions to homologous and heterologous tuberculins vary in the same individual and may subside altogether, and that the development of allergy may be long delayed. Thus it is not wholly unexpected when we read of the Americans detecting weak and the Canadians marked reactions, and Hagan finding that the power to react may disappear entirely in skin lesion subjects. These facts are reminiscent of observations on avian infections in cattle in Denmark and human infections in Finland. In the latter country the failure of such infection to induce a reaction to the subcutaneous test is used as a diagnostic procedure.

*Present Views on Ætiology.*—Hagan (1929) reviewed the evidence so far available, and stated: " that whilst it would be unwise to pronounce these lesions non-tuberculous, there is a great deal of evidence in favour of this." Those interested in the reasons which led to this conclusion should consult the original, but they may be briefly stated as follows:

(*a*) Evidence in support of the tuberculous nature of the condition: (1) That acid-fast organisms indistinguishable in morphology and tinctorial properties from tubercle bacilli may be found in a considerable proportion of the lesions. (2) That histologically the lesions are indistinguishable from those produced by tubercle bacilli. (3) That a large proportion of the animals affected with these lesions react to tuberculin.

(*b*) The evidence which opposes the tuberculous nature of the lesions: (1) Many workers have shown that guinea-pigs and other experimental animals do not usually become tuberculous as a result of inoculation with material from the lesions. (2) As a general rule the lymph glands in the vicinity of the lesions do not become tuberculous or show any other lesions, and it has not been shown that the disease ever progresses to the point of involving internal organs. (3) Those who have attempted direct cultivation of the causal organism from the lesions using methods which favour the tubercle bacillus and which should succeed occasionally, at least if the tubercle bacilli were present, have uniformly failed. (4) The epidemiology of the disease does not coincide with that of tuberculosis as would be expected if the tubercle organism were the causal agent.

The present day policy in North America is to kill all reacting cattle which show skin lesions, because it is impossible to decide whether the lesion *per se* or coexistent orthodox tuberculosis is responsible for the reaction.

* In Canada synthetic tuberculin derived from a bovine strain has been in general use for the last three years. In the U.S.A. synthetic tuberculin from a human strain was officially adopted in April, 1934. The method of preparation differs from that employed in Cambridge, England.

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*Occurrence of the disease in cattle in (a) Great Britain and (b) certain Continental countries :—*

(*a*) *In Great Britain.*—We have never seen, neither have we yet searched for, examples of the disease in cattle in the British Isles. Mr. Addison, an assistant veterinary officer in the Sheffield abattoir, described to us lesions which he had observed in dairy cows affected with open tuberculosis and received for slaughter from farms near Sheffield. From the description we have little doubt that the lesions were identical with the skin tuberculosis of North America, the more so because acid-fast bacilli were found by Addison in films prepared from the nodules. Mr. J. Cormack, a veterinary surgeon practising in Coventry, Warwickshire, authorised us to state that he had noticed in cattle subcutaneous enlargements which he concluded from clinical examination were examples of skin tuberculosis. These cattle were neither under test nor treatment, and so there was no opportunity for further investigation.

(*b*) *Skin Tuberculosis in the Cattle of Certain European Countries.*—We have addressed inquiries to the following veterinary authorities concerning the ocurrence of skin tuberculosis, and are indebted for the replies appended below :

Sweden (Professor H. Magnusson, the Director, Agricultural Society Veterinary Laboratory, Malmö).—" So far as I know, nothing similar to skin tuberculosis exists in the Scandinavian countries or in Germany. The only lesions one might consider in this connection are warts on the teats, but these have never been noted to cause tuberculin reactions."

Finland (R. Stenius, the Director of the Tuberculosis Eradication Branch, Ministry of Agriculture, Veterinary Department, Helsingfors).—" Such a disease (*i.e.*, skin tuberculosis) we have never recognised here in Finland."

Denmark (P. Woldike Nielsen, Supervisor of Tuberculosis Eradication and Meat and Milk Control Departments, Veterinary Directorate, Copenhagen).—" Fortunately the lesions are unknown in Denmark."

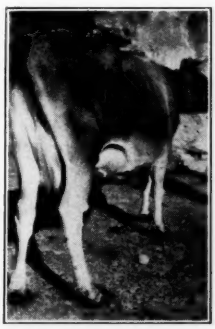
Germany (Professor Dr. Wagener, Institute of Veterinary Hygiene, Faculty of Veterinary Science, Berlin University).—" We have never recognised skin tuberculosis in cows in Germany."

Switzerland.—We neither heard nor read of the disease during our visit in 1936.

*Policy in Great Britain.*—No policy can be formulated until the incidence at least is known. The patchwork nature of the veterinary public health services, particularly south of the Border, renders a nation-wide estimate less easy to carry out than in some other countries. If the National Veterinary Medical Association, the Veterinary Officers' Society, the Provincial Investigational Officers and the Ministry of Agriculture's field staff and the general practitioners co-operated, there is no reason why a reasonably accurate map showing the incidence could not be prepared in the course of one year.

Secondly, a laboratory might utilise such cases as were available, especially

FIG. 1.—A so-called "skin tuberculosis" lesion on the antero-medial aspect of the left fetlock. [This photograph was given to me by Dr. C. A. Mitchell, a member of the staff of the Health of Animals Laboratory, Hull, Quebec, the Director of which, Dr. A. E. Watson, kindly gave me permission to use the print for publication in England.—G.B.B.]



FIGS. 2 and 3.—Two typical lesions on a Jersey cow. The same animal figures in both photographs, and the lesions can be seen on the antero-lateral aspect of the right hind limb at the level of the hock and "stifle" joints respectively. The animal was a reactor to the caudal fold intradermal tuberculin test. [The photographs were taken by the writer on a farm near Toronto during work kindly arranged by Dr. Moynihan, Chief Federal Veterinary Officer for Ontario Province, at the request of Dr. Hilton, Veterinary Director-General for Canada.]

(*Article by* Geoffrey B. Brook, D.Sc., F.R.C.V.S., *page* 135)

those from supposedly tuberculosis-free herds, to elucidate several points of practical importance, such as :

(*a*) Is the reported failure to react to the subcutaneous tests constant enough to be of diagnostic value in the same manner in which Stenius (1933) employs the test to differentiate true tuberculin sensitiveness in cattle from that induced by exposure to tuberculous infection of human origin ?

(*b*) Does surgical removal of the nodules abolish the hypersensitiveness to tuberculins, and, if so, after what period of time ?

(*c*) What proportion, if any, of animals lose their capacity to react to tuberculin? If this loss occurs, is it of equal degree in the case of the different tuberculins and/or tests, and how soon is it brought about ?

It would be of value in conducting such work to use the American methods of testing with tuberculin obtained from Washington and Ottawa alongside the Buxton double intradermal method with Cambridge tuberculin.

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# Clinical Articles

## A Case of Fistulous Withers Treated by Brucella Abortus Vaccine.

By J. C. BAIRD, B.V.Sc., M.R.C.V.S.
*Liverpool.*

THE significance that can be attached to the presence of *Br. abortus* in the lesions of fistulous withers in horses is not at present understood. It is an established fact that in a proportion of cases this organism is present, and as the cause is not definitely established, *Br. abortus* must be looked upon with some suspicion. The mere presence of the organism does not mean that it is the cause, and the evidence against this is that in a number of cases the nematode worm *Onchocerca cervicalis* is the only demonstrable parasite, and again, many cases occur where apparently neither the worm nor *Br. abortus* exist.

Having had experience of the unsatisfactory way in which some cases of fistulous withers heal when treated surgically, it was decided, when the next case came to notice, not to attempt surgical methods at the outset.

A Shire gelding which was recently purchased had come into the town from the country. Whether it had been on a farm where *Br. abortus* existed among cattle is not known, but as infection of cattle is so widespread, it is not unreasonable to consider this as the probable source.

Approximately four months after joining the stud the horse developed fistulous withers, the swelling fluctuating on the near side. As a preliminary, a sample of the contents of the swelling was taken by means of a hypodermic needle under strict aseptic precautions. As much fluid as possible was removed from the lesion by this means. The puncture soon closed over and the swelling filled to its former size in the course of a few days. Examination of the fluid revealed the presence of agglutinins in dilution of 1 : 160, and *Br. abortus* was obtained in culture from the fluid. The blood serum at this stage contained practically no agglutinin (trace in 1 : 10).

The treatment adopted was the subcutaneous inoculation of a formalised vaccine made from the organism. Blood samples were taken before each injection, which were made in alternate sides of the neck at approximately weekly intervals. A record of temperatures showed the maximum reached was 101.8° after the second injection. The normal temperature of this particular horse in the morning, when the temperature was always taken, was generally less than 100°. The local reaction was considerable and persisted for many days. A series of four injections was given, and the highest agglutination titre of the blood serum was 1 : 20.

Opinion was expressed that the local reaction was not entirely due to sensitivity

of the tissues to the vaccine, and some of the swelling was attributed to the presence of formalin and the vaccine.

Another vaccine where the organisms were killed by heat was prepared, and the vaccine was used in a similar way. The local reaction was less persistent, and the temperature reached after each injection was about 103°. Blood samples were taken before each injection, the highest dilution in which agglutination took place being 1 : 40. The lesion gradually retrogressed, and after two or three months the horse resumed work, with but little evidence that the lesion ever existed. The animal has now worked for twelve months without recurrence of the condition.

It is impossible to estimate what influence the vaccine treatment had, if any, upon the course of the condition, and no conclusion can be drawn from the result of the case. The most surprising feature is the low agglutination titre of the blood serum, which appears to be considerably below that recorded by others in similarly affected cases.

The termination of the case was satisfactory, but further information is necessary, and I consider an extended trial on similar lines might be of some value. I have to thank Professor J. F. Craig and Mr. G. O. Davies, who kindly undertook the laboratory work in connection with this case.

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## Inguinal or Scrotal Hernia.

By RICHARD HUDSON, F.R.C.V.S.

*Retford.*

I WELL remember Professor McQueen's description of the procedure in the operation for the cure of scrotal hernia in the colt. His enumeration of the envelopes to be cut through—skin, dartos, cremasteric fascia—until the tunica vaginalis was reached. I also remember my first operation and my fiddling dissection of the layers for fear I should cut into the vaginal sac. Perhaps I never got there, because I remember how difficult it was to free sufficient testicle to clam, and that my clam was pushed off by swelling two days later, fortunately without ill result. What took me about an hour to perform then, to-day takes about five minutes.

The patient, having been cast and tied as for ordinary castration, anæsthetised, and held in position by two filled sacs, the area of operation is cleansed and dressed with iodine. The scrotum is manipulated to return the bowel to the abdomen, and the position of the inguinal opening noted.

A free incision is made about four inches long, three or four inches to the side of the inguinal opening and posterior to its anterior end. The underlying connective tissue is separated by the fingers along the neck of the scrotal sac and the testicle pushed up to the incision. Grasping it in the fingers, the outside of the sac is freed from adhesions by working the fingers round the upper part until its firmly adherent portion at the end is reached, and this must be severed with

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knife or scissors. Further separation from connective tissue must be carried out along the neck of the sac up to the inguinal opening. The sac, cleared of any bowel contents by passing the thumb and finger along its course, is given two or three twists, and the clam applied as high as possible on the neck.

Sometimes the clam is difficult to close, and one might be tempted to divide the cremaster muscle as it follows the sac to lessen the bulk enclosed; but it is a mistake to do so as it favours too early sloughing of the clammed portion. Before tightening up the clam the interior of the sac is opened up to note if any bowel or omentum is present. If it is empty of them, the clam should be tightened by forceps, made extra safe by tape tied round the end and then sutured to the anterior extremity of the skin wound. The testicle and sac are now removed about two inches below the clam, and the wound dusted with iodoform and boracic powder.

Perhaps there is one drawback to operating so high up, and that is that it may in a big hernia leave a pocket in the scrotum where serum may accumulate and go septic. If there is a lot of loose scrotal tissue it may be advantageous to make an opening at the bottom for drainage.

In small hernias the clam may be removed in three or four days, but in large ones it is better left until it falls off. I once had bowel descend after it had been on five days, so have not been in a hurry to remove them since.

Where both testicles are present the covered operation should be done on both. The bowel has an uncanny way of trying to find an opening, and I was once "let down" by failing to prevent it in a horse which had shown no signs of hernia on the other side.

As to clams, I have found nothing better than wooden ones. They are light, easily applied, and can carry a dressing. Those I use are 8½ in. long, ⅞ in. thick, and slightly grooved. They are made from lancewood or ash, and the ring fastening is of strong wire, which never breaks or stretches.

For dressing I use powdered hydrarg. perchlor. mixed with a little gum, and painted on.

After-treatment.—The wound should be kept clean by swabbing with some antiseptic solution and the colt should be exercised or turned out. If in a large hernia the clam is not off in about ten days, it should be removed and the wound well swabbed out.

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## Scrotal Hernia in Calves.

By RICHARD HUDSON, F.R.C.V.S.
*Retford.*

*Case* 1.—The subject was about seven months old and both testicles were present. The hernia was present on both sides and formed a large sac about twelve inches long by seven inches wide. For the reason that the tunica vaginalis in these large hernias is often very thin from over-stretching, and that after

operating in the usual way a large sac of scrotum still remains and may lead to septic complications, it was thought advisable to operate by taking off the whole of the scrotum by ligature.

The animal was cast and prepared in the usual way. The testicles were found and held in the end of the sac while the contents were returned into the abdominal cavity. A needle carrying a ligature of strong thin cord was passed through the centre of the upper part of the scrotum as high up as possible, and the ligature tied on one half of the scrotum. A second ligature was applied over the first. The same procedure was carried out on the other side. An effort was made to place the ligatures as high as they could be placed on each half of the sac.

Having opened up the sac to see that no bowel or omentum was included in the ligature, the scrotum was removed about two or three inches below the ligature. Fourteen days after the operation the calf had improved in condition, but the ligatured portion had not sloughed off. There was no need for interference, so it was left another fourteen days, when it was found that the part below the ligature had shrunk and the surface healed over with a dry scar. A bistoury was passed along the track of the ligature, and first one side and then the other cut through, hæmorrhage being checked with the hot iron.

*Result.*—The inguinal opening on one side appears to be closed and no bowel can be felt ; on the other there is evidence of a small sac with bowel in it which may yet take up from the swelling still existing in the region.

*Case* 2.—This calf was also about seven months old. He had been castrated by the open method and soon after healing was found to have an enlarged scrotum. When I saw it the sac would be about seven to eight inches long and about six inches wide, and was formed in one half only of the scrotum.

In this case the skin was incised along the upper portion of the sac, the tunica vaginalis sac separated out by fingers except where adherent at the bottom, enclosed in a strong wooden clam, and the lower portion removed. The interior of the scrotum and wound was dressed with iodoform ether (1 in 8) and oil (8 parts). The wound contracted up splendidly, and the clam was removed in about fourteen days.

*Result.*—A very satisfactory result, and much better than the ligature operation in Case 1.

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## Delayed Inversion of the Uterus in a Cow.

By J. ADAMSON, M.R.C.V.S.
*Bolton.*

*Subject.*—Cross-bred Shorthorn cow, about four years old, which had calved her second calf three days previously. Delivery was normal, but the afterbirth had been retained.

*History.*—The message received was to the effect that the cow was straining violently, and the owner was afraid that she was going to " put her womb out."

On arrival his worst fears had been realised. The cow was recumbent and had a complete prolapse of the uterus, to which the afterbirth was still firmly attached by about a dozen cotyledons.

*Treatment.*—Two ounces of chloral hydrate was administered and the fœtal membranes detached. The uterus was small and involuted to such a degree that it fitted comfortably into an ordinary stable bucket, and was washed thoroughly in cold water. (Cold water is purposely used in these cases as it is thought that cold further reduces the size of the uterus, and no ill effects have been known to follow its use.) The cow was then got on to her feet and an attempt made to return the prolapsed organ; this attempt was strongly resented by the cow, so she was cast, the hind legs were roped together, and the hind quarters raised about two feet from the floor with blocks. The cow was then anæsthetised with chloroform and a further attempt at reduction made. The whole of the uterus could be quite easily returned within the vulva, but here no further progress could be made, and this was found to be due to the fact that the os was contracted to a firm ring about 2½ inches in diameter, and it was impossible to pass the organ through it. The uterus was allowed to prolapse again and the os grasped and drawn outside the vulval lips, where it was held by the owner whilst three incisions, one inferior and two lateral, were made almost completely through it. After this had been done it was a comparatively easy matter to return the uterus to its normal position in the abdominal cavity. The cow was then lowered to the ground, propped up on her brisket and left.

The following day she appeared quite well, and was ruminating, and had a good appetite. No further treatment was adopted and uneventful recovery followed.

Two years ago a similar case was encountered in a heifer which had calved two months prematurely and suffered an eversion about sixty hours later. In this case also it was found impossible to pass the uterus through the os, so it was left in the vagina and a West's clamp applied. The following day the os had dilated sufficiently to complete the operation.

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## The Right Scaphoid (Central Tarsal Bone) in the Racing Greyhound.

By JAMES K. BATEMAN, B.Sc., M.R.C.V.S.

*Chief Veterinary Surgeon to the Greyhound Racing Association, Northaw, Middlesex.*

"BROKEN hock" occurs not infrequently in the racing greyhound. In this country all races are run over left-hand courses, and though I *have* seen a left hock broken, when one hock has been broken on a track it has invariably been the right hock, *i.e.*, the outer one, which has gone.

The term "broken hock" is applied to fracture of any bone in the tarsus, but the usual condition is fracture of the scaphoid bone, and this is plainly

Fracture of the scaphoid bone (lateral view).

Fracture of the scaphoid bone (lateral view).

(*Article by* Mr. James K. Bateman, B.Sc., M.R.C.V.S., *page* 146)

Fracture of the scaphoid bone (lateral view).

Fracture of the scaphoid bone (antero-posterior view).

(*Article by* Mr. James K. Bateman, B.Sc., M.R.C.V.S., *page* 146)

Fractures of the os calcis and scaphoid bones (lateral view).

Complete dislocation of the scaphoid bone (lateral view).

(*Article by* Mr. James K. Bateman, B.Sc., M.R.C.V.S., *page* 146)

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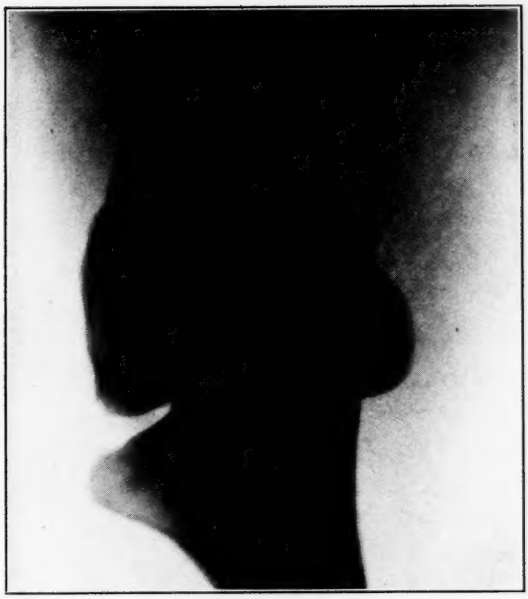
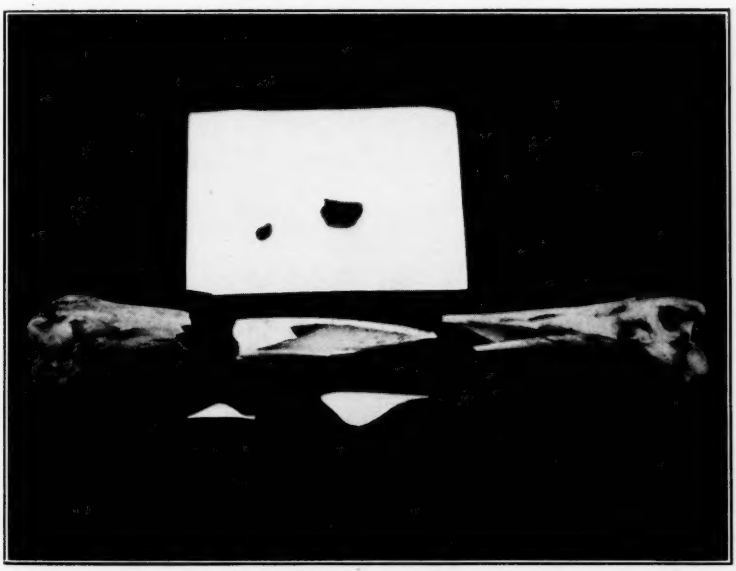
Complete dislocation of the scaphoid bone (antero-posterior view).

Reduction of the scaphoid bone following complete dislocation.

(*Article by* Mr. James K. Bateman, B.Sc., M.R.C.V.S., *page* 146)



Fracture of the medial condyle of the femur.



Comminuted fracture of left femur and patella of a greyhound, due to collision with a fence.

(*Article by* Mr. James K. Bateman, B.Sc., M.R.C.V.S., *page* 147)

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" Gallant Rajput " Harringay, the three year old son of " Mick the Miller," who is the only tailless greyhound at the Northaw Kennels.

(*Article by* Mr. James K. Bateman, B.Sc., M.R.C.V.S., *page* 147)

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seen in the skiagraphs of the broken hocks of three dogs. No other bone in the tarsus seems to be so liable to fracture, and in my experience of over 70,000 runners I have not yet seen fracture of any of the other small bones of which the joint is composed. It has been my experience that the os calcis is the next bone most likely to fracture, but it is interesting to note that in those cases in which this bone is fractured the scaphoid too has gone, as shown in the skiagraph. Partial dislocation of the scaphoid occurs occasionally and complete dislocation without fracture may occur. Here, again, the condition is plainly shown by X-ray, and I have not experienced dislocation of any other bone in the tarsus.

As a general rule, dogs with simple fracture or dislocation of the scaphoid are able to race again after a period of about three months. Considerable new bone is deposited over the tarsus with complete immobility of the compound joint. Former speeds are never quite attained, but recovered dogs can generally lead a useful life either on the flat or over hurdles. Treatment consists of application of L-shaped splints, cotton wool and bandages for a period of roughly four weeks, followed by adhesive plaster bandages, with exposure of the foot. When complete dislocation has occurred, this is reduced under general anæsthesia, and recovery occurs as in fracture, and again with considerable deposit of new bone, as shown in the skiagraph.

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## Fracture of the Femur in the Racing Greyhound.

**By JAMES K. BATEMAN, B.Sc., M.R.C.V.S.**

*Chief Veterinary Surgeon to the Greyhound Racing Association, Northaw, Middlesex.*

FRACTURE of the femur is not common in racing greyhounds, but it occurs generally in the left leg, and as a result of collision with the inner fence of the track, and at that part where the " straight " ends and the greyhound cuts in to get the innermost berth round the bend.

The stifle joint usually receives the blow, and almost invariably on the patella or on the medial condyle of the femur. In many minor accidents to this region, due to collision, I have never seen the outer aspect of the joint marked in any way. The medial condyle may be broken off the femur, or the shaft of the bone broken into many pieces as shown in the photograph. Injuries to this region are always serious, and if any fracture is present the chances of a dog racing again are very slight.

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## The Tail of the Greyhound.

**By JAMES K. BATEMAN, B.Sc., M.R.C.V.S.**

*Chief Veterinary Surgeon to the Greyhound Racing Association, Northaw, Middlesex.*

THE tail of the racing greyhound does not come, as a rule, above the level of the back. It has been held that if the tail curls over the back, or is amputated, then the dog cannot steer itself. The theory is open to question. There is a

greyhound—Watford Highway (Genial Nobleman–Aberfoyle)—with tail curling well over the back and which has been the winner of many races, particularly excelling over long distances.

The photograph shows a greyhound with tail amputated above the anus following gangrene. This dog was a wide runner prior to amputation. He has never run so wide since losing his tail, and though never a first-class dog he has won a number of races and is better than many dogs with the " orthodox " tail.

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## Abnormal Temperature in a Terrier.

By J. ADAMSON, M.R.C.V.S.

*Bolton.*

An outbreak of distemper occurred in a kennel of Sealyham terriers. The inmates consisted of five animals ranging in age from seven months to six years, and all were affected with the exception of a six-year old stud dog which remained healthy all the time.

The infection was introduced by an eighteen-months-old dog, which exhibited symptoms about six days after visiting a dog show. Immune serum was given at once and the animal isolated. However, the others developed symptoms and were also treated with serum. The epidemic followed a normal course, and all the affected animals were apparently recovering, when a seven-months-old pup developed fits and pneumonia sixteen days after first exhibiting symptoms, and died in twenty-four hours. Two days later the eighteen-months-old dog was attacked by an epileptiform convulsion which lasted two hours when the animal was seen by the writer. The dog was lying on its side, all voluntary muscles twitching violently, membranes injected, passing fæces and urine involuntarily, panting, pulse about 180. A clinical thermometer was introduced into the rectum, more to impress the owner than for any information which it might give, as the dog, obviously, had not long to live. The thermometer used is graduated up to 112° F., and beyond this is a further ungraduated part corresponding to about 3° F. On taking the reading the mercury had mounted right to the top, and I have no doubt would have gone higher had space permitted. The dog's temperature was at least 115° F. Thinking that the thermometer might be at fault, a second one was inserted, and this time observation was kept on the mercury, which rose to 112° F. in about ten seconds, when the thermometer was withdrawn.

No treatment was adopted and the dog died about five minutes later. Unfortunately, no post-mortem was made. Another bitch, two years old, which was thought to have had distemper previously, also developed fits a fortnight later and had to be destroyed. At present the remaining bitch is in good health ; it is six weeks since the last one was destroyed, and no further trouble is anticipated. I am of the opinion that some form of meningococcus must have been responsible for the brain symptoms.

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## Electric Shock.

By J. W. HALL MASHETER, M.R.C.V.S.
*Newnham-on-Severn.*

FURTHER evidence is available as to the danger of electric cables causing death and injury to stock in *The Farmers' Weekly*, February 26th, 1937, which is of interest as it adds still further to the difficulties experienced in insurance cases due to lightning stroke. It is necessary to accumulate these facts as they occur, as there is no doubt that veterinary surgeons will be increasingly called upon to give an opinion in these cases, and to differentiate between death or injury due to those electric leakages, and death or injury caused by actual lightning. It may be assumed that those deaths which are due to electric shocks or electrocution will be opposed by insurance companies, and a test case may be necessary to settle the legal aspect; and possibly a special clause in the policy will have to be inserted to protect both the insurance companies and the holder of the policy.

The facts as recorded are as follows: Electric shocks from a leaking underground cable are believed to have killed a cow and stunned a number of others on a farm at Wirral, Cheshire. The cattle had been transferred to a field while the shippons were being cleaned out, and farm workers were surprised to see the animals suddenly collapse. The men who went to give assistance received slight shocks when they touched the cattle, but one man who wore rubber boots was not affected.

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## Acute Yellow Atrophy of the Liver in Sheep.

By J. W. HALL MASHETER, M.R.C.V.S.
*Newnham-on-Severn.*

QUITE recently I was called to a small flock of ewes, one of which had died and two others were ill.

*Symptoms of Ewe No.* 1.—This ewe had been ill for two days. There was nothing remarkable as to symptoms—persistent recumbency and inappetence.

*Symptoms of Ewe No.* 2.—This ewe had only been noticed to be ill that morning, and was apparently normal the night before. She stood persistently and had a most depressed appearance. All four legs wide from the body, giving the impression of being "propped up"; head depressed, conjunctiva swollen and very occasional grinding of the teeth, bloated rumen, oblivious to all surroundings. When approached she became very excited: head elevated, eyes staring, knees were brought almost up to the chin with jerking movements; hind legs as if affected with stringhalt, and then extended backwards to full length with knuckling over of the fetlocks, but no progression in either direction; body extended and down-curved. Then a spasm of the whole body; head further elevated and pulled back almost to the shoulders; hind legs gave way and she sat on her haunches; a still greater spasm which pulled her straight backwards so that she lay on her

back with all four legs in the air. She kept this position for about a minute, then rolled over on her side, regained a standing position, shook her head violently several times and returned to her original "propped" position. I was told that ewe No. 1 had shown exactly the same symptoms before assuming the recumbent position.

*Treatment* was symptomatic: a purge, followed by magnesium lactate and lactic acid.

*Post-mortem appearances* of the ewe found dead.—Twin lambs in the uterus at about full term. Stomachs and intestines empty, as was the bladder. Rumen bloated, duodenum ditto, jejunum appeared to be normal, but about 2 feet of the ileum were intensely inflamed, the mucous membrane being hæmorrhagic, and the lumen contained a small quantity of blood. The liver was small, soft, and of a bright-yellow colour. Gall-bladder about three-quarters full of bile, and a light-coloured thick fluid, probably catarrhal exudate.

Kidneys distended and very soft. They fluctuated on pressure, were in appearance like large purple plums slightly over-ripe, and had a purple-grey appearance on section.

Heart.—all cavities were engorged; muscle cloudy and dark in colour. The pericardial sac contained about three ounces of dark sanguineous fluid. Lungs congested and œdematous.

Ewe No. 2 was housed with ewe No. 1, and treated as above for two days. Gruel was administered with the medicine. On the third day she commenced to eat green food (cabbages) voraciously and made an uninterrupted recovery.

Ewe No. 1 died five days after being noticed to be ill. She appeared to be recovering and had commenced to eat.

*Post-mortem appearances* of this ewe were exactly similar to those already recorded, even to the twin lambs.

I took parts of the liver, ileum and the kidneys, intending to send them for examination, but by the time I got home, some two hours later, they were in such a state of decomposition and stank so horribly that I buried them as quickly as possible. They had simply melted. The piece of liver had shrunk to a quarter of its size, and had lost its bright colour; the kidneys had lost practically all but the capsule, and the bowel had collapsed—nothing but externals and a watery fluid.

These ewes had been on this holding only a fortnight and were put with twenty other ewes in the same field. They were not good mixers, but "kept themselves to themselves." They broke out into the surrounding forest, and no matter how often they were brought back they broke out again, and they were eventually left in the woods, and were seen twice a day. The disease occurred only in these ewes, the original inhabitants of the field remained free and acted, one might say, as controls.

Owing to the mild winter, herbage of all sorts is beginning to show, and the flora of this primeval forest is so varied that it is impossible to tabulate it. I

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think it possible that these ewes, not being used to forest grazing, may have eaten either fresh or old herbage which set up a toxæmia. They were removed from the forest on to fresh ground, and no more cases occurred.

*Literature.*—The nearest I can come to this condition is " acute yellow atrophy of the liver," together with a mixture of lupinosis, as described by Hutyra and Marek. Condensed, it is as follows :

*Acute Yellow Atrophy.*—This is a process of severe parenchymatous and fatty degeneration associated with a rapid disintegration and atrophy of the liver cells which are directly due to toxins. In animals, such a process is brought about especially by toxins foreign to the body, particularly phosphorus, more frequently, however, by lupins and *by other unknown vegetable toxins.* "Galziekte" in sheep is produced by the toxin of a leguminous plant (Rickman). Callot observed multiple cases of *unknown origin* in Uruguay. Intoxication by spoiled feed (hay from inundated regions) (Haubner and Franze) as well as the toxic effect upon the liver tissue in certain types of gastro-enteritis and septicæmia. Acute yellow atrophy occurs much more frequently than the literature would indicate because it is frequently diagnosed as acute parenchymatous hepatitis. Particularly is this true of cases described as acute " diffuse " parenchymatous hepatitis of sheep, and enzootic hepatitis of pigs (Jæst). Personally, I frequently come across the latter disease in pigs.

*Lupin Disease,* the symptoms of which are again similar to these cases in many respects.—It usually affects sheep only. As regards ætiology, I shall only mention the following, because these sheep had no hand-feeding whatsoever. . . . " But it cannot be denied positively that the toxin is produced by fungi which grow on dead plants . . . and is allied to the bacterial and fungoid toxins."

Taking the line that the toxin is produced by fungi which grow on dead plants, it is quite possible that the condition in these ewes was caused by that toxin. The pathogenesis also fits in, as the toxin principally affects the mucous membrane of the alimentary canal, and after absorption affects the liver, setting up fatty degeneration and catarrh of the gall-bladder. The toxin circulating in the blood causes parenchymatous degeneration and fatty degeneration of *all* solid organs, and the anatomical changes include, in addition to the liver, fatty degeneration of the *kidneys, heart muscle,* and severe inflammation of the abomasum, *ileum,* and large intestine.

*Symptoms.*—Lack of appetite, cerebral excitement and, later, depression, and the course of the disease in acute cases is similar in that death occurs in three to five days. What is important is this : If the food is changed immediately the symptoms appear (in this case gruel and subsequently green food), improvement sets in about the fifth day, and there is rapid and complete recovery.

*Treatment.*—Preventing the absorption of the toxin by giving acid solutions and removing the toxin from the intestines as rapidly as possible (absorption does not take place from the stomachs) by means of an oleaginous purge.

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## Prolapse of the Uterus, Vagina and Rectum in the Pig.

By RICHARD HUDSON, F.R.C.V.S.
*Retford.*

I HAVE not been asked to attend as many cases of prolapse of the uterus as formerly, but prolapse of the vagina and rectum have been more common. I do not know why. Prolapse of the uterus was, and is, regarded as a usually hopeless condition, though one tries to do one's best, having a litter of young ones and often a poor owner to consider.

The prolapsed organ is often so lacerated and soiled as to render an attempt at replacement futile, and only two alternatives remain—slaughter and amputation. The latter I have tried on several occasions, but the patient has not survived more than a minute or two. In cows one may get better results, though death from shock must be expected. If we had a satisfactory hypnotic, one that could be given without upsetting the patient, possibly shock could be averted and amputation more safely carried out.

It is useless attempting to replace the uterus, and often the vagina, in a sow without placing the animal under control, and the best method is to sling her up by the hind legs to a beam, a procedure which must be gently carried out, or she will be up and wandering about the place, damaging the trailing womb, or rubbing the vagina against the wall. Having fixed up the pulley the hind legs are secured above the hocks in a running noose for each, and she is gently and quickly raised while an assistant holds her from standing on her forelegs. The womb can now be washed and lubricated with carbolised castor oil, 1 in 24, and an attempt made to replace it. It often fails because of its swollen condition and its inability to pass the contracted os. If one has been successful the lips of the vulva must be sutured. The simplest and perhaps the best method is to pass through three sutures of double tape, tying one lot of sections across the vulva and the other sections along the sides. By so doing the opening is closed and vertical stretching prevented.

When the vagina only is prolapsed, replacement and fixation in position is easy if the animal is slung up, and one can suture much more satisfactorily.

After-treatment consists of providing a laxative and concentrated diet—an addition of boiled swedes or mangolds is good—and exercise. The sutures may be removed in about a week.

The bottom suture should allow a little more room between it and the end of the vulva so that urine may be passed. If it is forced into the vagina it will set up inflammation and straining and a nasty necrotic condition of the mucous membrane.

I have tried various aids in my attempts at replacement, but found none to be satisfactory. A few minutes spent in massaging with oil while an assistant holds the free end elevated—the end being secured in a thin towel or a piece of wide bandage—is a great help.

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## Azoturia in the Pig—or What ?

By F. L. GOOCH, J.P., F.R.C.V.S.
*Stamford.*

LATE at night, on January 21st, we received a telephone message to attend a sow that was seriously ill. My son motored over, and found a sow of the "Large White" breed with six pigs in a small sty. Upon examination he found the sow unable to stand on her hind legs, and had refused her food that night. Upon closer examination he found her back as far forward as the lumbar region very hot, but the rest of the back cold. He was suspicious of swine erysipelas, but it being so very dark he could not see if there were any discoloration of the skin. He administered an aperient in the form of an electuary and left some to be given in the morning. With my son I visited the sow on the morning of the 22nd, and we found her in a similar condition as on the previous night, but with a little assistance we managed to get her on her legs, and with help I walked her just outside, when she micturated, and passed a pint or two of coffee-coloured urine ; we assisted her back to her shed and she then partook of a little food. The treatment was continued, and the sow was visited again on the 24th, when she was much improved, and could walk by herself very slowly. From this date she was not seen again, but she slowly improved. The pigs were six weeks old at the time of our first visit.

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## The Application of Nembutal to a Swan.

By B. E. WOOSTER, M.R.C.V.S.
*High Wycombe.*

A SHORT time ago I was asked to see a swan belonging to the Public Park Department, which had received terrible injuries from violent contact with the telegraph wires. The bird was an adult, weighing about 20 lb., and in order to control it for examination, I injected nembutal, allowing a fifth of a grain per pound body-weight, into the large vein under the wing. The anæsthetic effect was immediate and satisfactory, and I was able to make a detailed and quiet examination, which revealed badly fractured ribs, leg and wing. These were so severe that it was decided that the bird should be destroyed before coming out of the nembutal anæsthesia.

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## Some Notes on the Efficiency of Home-made Sodium Hypochlorite as a Disinfectant.

By H. P. HAMILTON, B.V.Sc. (Tor.),
*Poultry Pathological Research Laboratory, Goring, Reading.*

To the man engaged in animal husbandry in its diverse aspects the question of cleanliness and disinfection ultimately resolves itself into the maintenance of efficiency combined with expenditure. That disinfection of premises used to

harbour animals is a necessity goes without saying, yet at the same time it is a necessity not without its financial considerations. The practical field man and the advising practitioner will readily admit that the fundamentals of hygiene entail in the course of a year a considerable expenditure in their fulfilment, despite the fact that the choice of application is very varied both in respect of cost, efficiency and general effect. Bearing these points in mind, I was encouraged to pursue some investigations in relation to an apparatus capable of producing a disinfectant to test the germicidal properties of the product, and to ascertain its efficiency in relation to certain specific bacterial elements commonly met with in avian pathology.

The point that impressed me about this disinfectant is that for a very reasonable sum (£10) an unlimited supply is readily available at a negligible cost, and from the economical aspect this is a matter of great interest to veterinary practitioners. The machine for manufacturing this disinfectant is known as the " E.C.D. Single Unit," and is obtainable from E. C. D., Ltd., Tonbridge.

A 10 per cent. solution of sod. chloride in distilled water is placed in the reception tank and the electric current switched on for a period of six hours. At the end of this period there is available one-third of a gallon of sod. hypochlorite solution with an available chlorine content of 1.2 per cent. The available chlorine content of the actual fluid tested was produced by a more elementary type of machine, and only produced a solution of 0.6 per cent. available chlorine. As the available chlorine is the active element in the disinfectant, the figures setting forth the results of our experiments would vary proportionately.

For the purposes of testing the product of this machine we approached the matter from three points of view : (1) The germicidal property, *i.e.*, the concentration of av. chl. necessary to *kill* a living culture in nutrient broth ; (2) the inhibitory effect on growth of bacteria in optimum media and temperature in different dilutions ; and (3) the concentration of av. chl. necessary to keep drinking water in a sterile condition.

For these tests *Salmonella pullorum*—the causative organism of pullorum disease, B.W.D. of chicks—was chosen on account of its hardiness and resistance to environmental conditions. The germicidal property of the resultant fluid was ascertained by adding varying proportions of the disinfectant necessary to give the final dilutions to twenty-four cultures in nutrient broth, leaving the organisms in contact with such for a period of exactly five minutes. A loopful of the culture was then transferred to an agar slant with a view to recovery of the organism *unless death had occurred*. The result of this test is set out in Table 1.

From this it will be seen that the resultant fluid with an available chlorine content of 0.6 per cent. will kill the highly resistant *S. pullorum* after an exposure of five minutes at a dilution of one part of disinfectant to ten of water.

Using the same type of organism, *viz.*, *S. pullorum*, an attempt was made to establish the inhibitory power of the disinfectant in media and temperature conducive to the growth of the organism. Nutrient broth tubes were set up and

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TABLE 1.—GERMICIDAL PROPERTY.

| Dilution of disinfectant in broth culture of *S. pullorum*. | Growth of *S. pullorum* recoverable on agar slant after exposure to disinfectant for five minutes. |
|---|---|
| 1 : 2 | — |
| 1 : 3 | — |
| 1 : 4 | — |
| 1 : 5 | — |
| 1 : 6 | — |
| 1 : 7 | — |
| 1 : 8 | — |
| 1 : 9 | — |
| 1 : 10 | — |
| 1 : 11 | ± |
| 1 : 12 | ± |
| 1 : 13 | + |
| 1 : 14 | + |
| 1 : 15 | ++ |
| 1 : 16 | ++ |
| 1 : 17 | ++ |
| 1 : 18 | ++ |
| 1 : 19 | ++ |
| 1 : 20 | ++ |

— No growth obtainable ; ± very sparse growth ; ± poor growth ; + moderate growth ; ++ good growth.

varying quantities of Ecdolite were added to give the range of dilutions as set out in Table 2. A living culture of *S. pullorum* was then transferred from an agar slant into the disinfected broth and the tubes incubated at 37° C. for forty-eight hours. The result of this test can be seen in Table 2.

TABLE 2.—CONCENTRATION OF DISINFECTANT NECESSARY TO INHIBIT GROWTH OF *S. pullorum* IN OPTIMUM CONDITIONS OF TEMPERATURE AND MEDIA.

| Broth containing additional disinfectant to give following dilutions and seeded with living cultures of *S. pullorum*. | Growth recoverable from broth cultures after 48 hours' incubation. |
|---|---|
| 1 : 2 | — |
| 1 : 4 | — |
| 1 : 6 | — |
| 1 : 8 | — |
| 1 : 10 | — |
| 1 : 12 | — |
| 1 : 14 | — |
| 1 : 16 | — |
| 1 : 18 | ± |
| 1 : 20 | ± |
| 1 : 22 | + |
| 1 : 25 | ++ |

— No growth obtainable ; ± very sparse growth ; ± poor growth ; + moderate growth ; ++ good growth.

From this it would appear that Ecdolite with a 0.6 per cent. available chlorine content inhibits the growth—as distinct from destroying growth already established—in optimum media and temperature at a dilution of one part to sixteen parts of water.

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The next test to ascertain the amount of available chlorine present to keep drinking water pure and sterile was carried out on similar lines to test No. 2. In this case water was taken direct from the tap into non-sterile test tubes. Necessary quantities of Ecdolite were added to afford the dilutions under review, and the test tubes were then seeded with a living culture of *S. pullorum*. In this case transplantation was effected by the addition of 0.1 c.c. of a nutrient broth culture, to simulate as near as possible the addition of organic matter likely to be encountered in drinking troughs, etc., such organic matter being an inducive growth factor. The whole was stood at room temperature, the tubes being neither sealed nor plugged. At the end of twenty-four hours cultures were seeded on to agar slants with a view to recovery of the organisms. The results of this test are set out in Table No. 3.

TABLE 3.—CONCENTRATION OF DISINFECTANT NECESSARY TO INHIBIT *S. pullorum* AND OTHER BACTERIAL GROWTH IN DRINKING-WATER.

| Dilution of disinfectant in tap water, seeded with living culture of *S. pullorum*. | Growth recoverable from tubes after standing, unplugged, at room temperature for 24 hours. |
|---|---|
| 1 : 100 | — |
| 1 : 500 | — |
| 1 : 1,000 | — |
| 1 : 1,100 | — |
| 1 : 1,200 | — |
| 1 : 1,300 | — |
| 1 : 1,400 | — |
| 1 : 1,500 | — |
| 1 : 1,600 | — |
| 1 : 1,700 | ± |
| 1 : 1,800 | ± |
| 1 : 1,900 | ± |
| 1 : 2,000 | ± |
| 1 : 2,100 | + |
| 1 : 2,200 | + |
| 1 : 2,300 | ++ |
| 1 : 2,400 | ++ |
| 1 : 2,500 | ++ |

— No growth obtainable ; ± very sparse growth ; ± poor growth ; + moderate growth ; ++ good growth.

From these tests it would appear that Ecdolite with 0.6 per cent. av. chl. is capable of keeping drinking water pure and sterile in a dilution of one part to sixteen hundred of water.

It should be noted that in this latter test the tubes were exposed to all other contaminating factors during the twenty-four-hour period, *i.e.*, the cocci, fungi, and other organic matter.

One point should be noted. The Ecdolite as obtained direct from the machine soon loses some of its available chlorine content. In the following table it is shown how the rate of depreciation quickly reduces the disinfectant properties of the fluid. This loss, however, can be prevented by the addition of 7.5 grm., 60 per cent. NaOH per gallon, such stabilisation being perfectly satisfactory as indicated in Table 4.

TABLE 4.—COMPARISON OF NON-STABILISED AND STABILISED FLUID.

| Non-Stabilised. Date. | Available chlorine. Per cent. | Stabilised. Date. | Available chlorine. Per cent. |
|---|---|---|---|
| 3.3.37 | 0.61 | 11.3.37 | 0.65 |
| 4.3.37 | 0.59 | 12.3.37 | 0.65 |
| 5.3.37 | 0.56 | 17.3.37 | 0.615 |
| 6.3.37 | 0.55 | 23.3.37 | 0.615 |
| 7.3.37 | 0.53 | 31.3.37 | 0.608 |
| 8.3.37 | 0.525 | | |
| 9.3.37 | 0.52 | | |
| 10.3.37 | 0.505 | | |
| 11.3.37 | 0.492 | | |
| 12.3.37 | 0.49 | | |
| 15.3.37 | 0.47 | | |
| 23.3.37 | 0.38 | | |

Reviewing this preliminary investigation, it appears that the makers of this machine have succeeded in producing at a reasonable cost an apparatus from which a ready supply of effective disinfectant and deodoriser is obtainable, and I was tempted into writing this short survey by the knowledge of the economics and vast possibilities afforded the veterinary practitioner.

In conclusion, it should be noted that the Ecdolite fluid used in these tests was in every case stabilised as above and contained 0.6 per cent. available chlorine.

# Abstracts of Current Literature

### A New Vaccine for "Black" Disease.

A NEW vaccine for "Black" disease which is administered in one dose has been produced by the Commonwealth Serum Laboratories. The old vaccine developed by Dr. Turner, and on which the manufacture of the new vaccine is based, required two doses. A single dose of the new product stimulates an active immunity many times as great as that stimulated by the usual two doses, and this immunity is sustained over a longer period than was formerly the case. It is claimed that a very high degree of immunity is reached fourteen days after injection, the maximum being reached in twenty-one days. In addition it has been found possible to reduce the volume of the injections from two doses of 5 c.c. each to one dose only of 2 c.c., an obvious saving of time and expense to stockowners.

According to Dr. I. Clunies Ross, the symptoms of animals affected with "Black" disease are :

(1) Sheep which die of "Black" disease are almost invariably in good condition, and they die quite suddenly—without a struggle. If sheep are seen sick for

several days or are in poor condition some other disease or starvation may be suspected.

(2) As the disease is associated with the invasion of the liver by the liver fluke, it is most prevalent between the months of December and June, being at its worst usually in February, March and April.

(3) If an affected flock be driven with a dog, one or more sheep will lag behind as though unable to keep up with the mob. If one of these sick sheep is forced along it will lie down on its brisket with its legs tucked under it, and its head stretched out as though it were out of breath.

(4) After death the carcase turns black and decomposition sets in very rapidly.

(5) On post-mortem examination a pale or reddish jelly-like material is frequently found under the skin, especially near the brisket. In the body cavity is found a cupful or more of clear or blood-stained fluid, the colour depending on the length of time the animal has been dead. The liver will be dark-red and full of blood. On careful examination of the surface of the liver there will be found one or more light-coloured patches varying in size from one-half to two inches in diameter, irregular in shape and their edges very clearly defined, being surrounded by a thin dark-red line.

In the chest cavity there is frequently found a small quantity of fluid, similar in all respects to that found in the body cavity. The most important lesion in the chest, however, is a small bag of jelly-like material surrounding the heart. This is enclosed in a thin layer of tissue in which the heart is enveloped and varies in quantity from two to four fluid ounces.

This new " Black " disease vaccine is obtainable from the Commonwealth Serum Laboratories, Parkville, Vic.

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**Bismuth Injections for Warts.** By C. V. GONINDA RAO, G.B.V.C.,Veterinary Inspector, Bangalore, and C. T. TIRUMALAISWAMI, B.A., G.M.V.C., Junior Veterinary Inspector, Bangalore.—*The Indian Veterinary Journal*, 1936.

*Introduction.*—Having read of the efficiency of bismuth injections in the treatment of warts in children in the monthly therapeutic notes issued by Messrs. Parke, Davis & Co., it was decided to try it in dogs brought to the infirmary for the treatment of warts.

*Subject.*—A bull-dog, aged about three years, belonging to Sir J. B., was brought to the hospital with the complaint that it was suffering from a severe infestation of warts in the oral cavity.

*Treatment.*—For the sake of convenience the drug is issued by Messrs. Parke, Davis & Co., in the form of 1 c.c. ampoules containing 2 grains of bismuth salicylate suspended in oil. Before opening the ampoule it must be slightly heated and well shaken. The injections were given intramuscularly at weekly intervals. The first injection was given on June 3rd, 1935, and the dog was next seen

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when it was brought to the hospital for the subsequent injections. The warts began to gradually decrease in number and size after each injection till the mouth was completely cleared of the importation after five injections.

Six more dogs were subjected to the same treatment and they responded equally well, some being cured after the third injection, others after the fourth injection, depending upon the severity of the attack.

*Conclusion.*—This mode of treatment is well worth a trial as it successfully replaces the troublesome method of surgical excision of the warts.

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**Ephemeral Fever (Three-day Sickness).**

THE symptoms, as supplied by Mr. Max Henry, Chief Veterinary Surgeon, Department of Agriculture, N.S.W., are: As the popular name—"three-day sickness"—suggests, typical cases of the disease run their course in about three days, but in complicated cases the symptoms may persist for weeks, or, unusually, recovery may take place in twenty-four hours. During the first day the beast neither feeds nor ruminates, and may evidence pain by grinding its teeth and groaning. When lying down it may allow its head to fall to its side as in milk fever. A noticeable feature is a swelling around the eyes, which, with redness of the conjunctiva and glaring appearance of the eye, are most diagnostic. In some cases heavy respiration and a copious flow of fluid from the nostrils are noticed, particularly at the onset of the trouble, but difficult breathing is not a constant symptom. Stiffness in the limbs, involving one or both forelegs, or one or both hind legs, is a significant symptom. It may rapidly pass from one limb to another, and also involve the muscles of the neck or back. The temperature on the first day may reach as high as 106.5° to 107° F., and in normal cases rapidly declines, and is seldom above 104° F. on the second. Constipation may be observed, but diarrhœa is not uncommonly present. The incidence of the disease is remarkable; outbreaks occur in areas far removed from one another, and between which there has been no interchange of stock. Cattle of all ages and breeds, of both sexes, in high and low condition, are equally susceptible. The spread in a herd is rapid.

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**Acid Used in the Humane Branding of Cattle.**

THE red-hot branding iron need no longer be applied to cattle, according to Dr. T. W. White, Director of the Idaho Bureau of Animal Husbandry. He has suggested a less painful and just as effective method of marking stock—the application of acid with a cold iron. The chemical, according to Dr. White, leaves a scar as permanent as that of the hot iron. It is more convenient, as it eliminates the need for a fire at the branding station. There are some 10,000 brand marks in use in Idaho to-day. These include the likenesses of skulls, corkscrews, fish, flowers, axes, pots and spectacles. Dr. White pointed out that although brands have materially reduced cattle rustling (theft), they can be altered and afford only limited protection.

# Obituary

## HENRY CAULTON REEKS, F.R.C.V.S.

THE death of Mr. H. C. Reeks at the age of sixty-five has removed from the profession a man of outstanding ability as a clinician, a practitioner who was able to put his thoughts into print in a clear and understandable way, whether read by the older practitioner or the young student. His works on "Colic" and the "Foot of the Horse" were authoritative and became not only class text-books but works of reference which were to be found on almost every practitioner's bookshelf; and to the American practitioner these were as welcome as they were to his professional brethren in Great Britain.

Mr. Caulton Reeks had his pupilage with his father in a very large country practice, graduating from the London College (where he had a distinguished student career and, for a time, served as tutor in the Free Clinic under Professor Hobday) in 1894, and taking his Fellowship degree in 1899. He served for twenty years on the examination board of the Royal College of Veterinary Surgeons as one of the examiners on the Clinical Aspect of Pathology, and it was largely owing to the increasing demands of his busy practice that he was compelled to relinquish this position. His death came somewhat suddenly, as he was taken ill whilst in the car on his visiting rounds and died shortly after reaching his house. As a diagnostician he was especially apt, and his presence will be missed by a very large *clientèle*.

# Personal

DR. GEORGE W. POPE, Chief of the Field Inspection Division of the Bureau of Animal Industry, U.S. Department of Agriculture, retired February 26th, 1937. Dr. Pope was graduated from the Chicago Veterinary College in 1889 and has been with the Bureau since 1895, having served under nine secretaries of agriculture. He has been chief of the Field Inspection Division since its organisation in 1928. In that capacity he has directed the Federal Veterinary Quarantine service which excludes various foreign live-stock diseases. He has also directed much of the Federal control and eradication work against cattle and sheep scabies, anthrax, dourine and glanders.

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